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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/781,752

02/20/2004

Yoshiharu Ajiki

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EXAMINER

HODGE, ROBERT W

ART UNIT

PAPER NUMBER

1795

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DELIVERY MODE

08/14/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/781,752	<b>Applicant(s)</b> AJIKI ET AL.	
	<b>Examiner</b> ROBERT HODGE	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-14 is/are pending in the application.
- 4a) Of the above claim(s) 1-4, 13 and 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5-7 and 9-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/21/08 has been entered.

### ***Response to Arguments***

Applicant's arguments, see Remarks, filed 7/21/08, with respect to the rejection(s) of claim(s) 5, 9, 11 and 12 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of U.S. Patent No. 5,683,561.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 5-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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In the tenth section of claim 5 it recites “a discharge device being used in at least the first gas flow path, forming the first current collecting layer.....and forming the second reaction layer”. It is unclear as to whether or not applicants are reciting that one of the layers is formed by the discharge device or if all of the layers are formed with the same discharge device. As evidence by independent claims 9 and 11, which both recite that only one layer is formed with the discharge device, for purposes of examining claim 5 is being interpreted such that only one layer need be formed by the discharge device. Therefore as long as the prior art teaches one layer of the fuel cell being formed with a discharge device it will read on claim 5 as recited.

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 5, 9, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,106,965 hereinafter Hirano in view of U.S. Patent No. 6,007,933 hereinafter Jones, U.S. Patent No. 3,158,510 hereinafter Gerhardt and U.S. Patent No. 5,683,561 hereinafter Hollars.

Hirano clearly teaches a method of manufacturing a fuel cell comprising forming gas flow paths on substrates, forming current collecting layers, forming reaction layers and forming an electrolyte film, wherein at least the electrocatalyst layer (i.e. reaction layer) is formed by a discharge device (i.e. sputtering and other methods) (column 5, line 1 – column 8, line 61).

Hirano does not teach a “nonmetallic” supporting member disposed in a gas flow path for supporting the current collecting layer or that the process is a continuous process being controlled by a controller.

Jones teaches a fuel cell assembly unit that provides a support member that abuts the flow field plate, said support member comprising a variety of configurations such as woven metal, perforated foil and/or a screen, which will inherently traverse the flow channels (i.e. disposed in a gas flow path because gas must flow through the support member to reach the gas diffusion member (i.e. current collecting layer)) thereby supporting the gas diffusion member (i.e. current collecting layer) and preventing it from being pressed into the flow channels which would in turn restrict the flow of reactant gases (abstract, column 9, lines 9-25). Jones further teaches that different parts of the fuel cell such as the gas diffusion layers can be made with porous carbon material which is known for its conductive and resilient properties, see column 1, line 62 – column 2, line 14, column 3, lines 5-10 and column 7, lines 6-20.

Gerhardt teaches a method for making a rigid porous carbon body suitable as a support or matrix in the formation of fuel cell electrodes (column 1, lines 11-14).

Hollars teaches a method of sputtering single or multi-layer coatings onto a surface of one or more substrates, wherein said substrates are transported through sputtering chambers (that inherently have a discharge device), wherein said process is a continuous process and controllers are used to control the entire process (abstract, column 10, line 61 – column 11, line 17, column 30, line 50 – column 33, line 20).

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Hirano and Hollars are analogous because they are all from the same field of endeavor, i.e. sputtering coatings onto a substrate.

At time of the invention it would have been obvious to one having ordinary skill in the art to include a porous carbon support member between the flow path and the current collecting layer of Hirano as taught by Jones and Gerhardt in order to prevent the current collecting layer from being pressed into the flow channels which would in turn restrict the flow of the reactant gases, thus reducing the efficiency and productivity of the fuel cell performance. It further would have been obvious to produce the fuel cells in a continuous process by using controllers to control the location of the substrate during processing in Hirano as modified by Jones and Gerhardt as taught by Hollars in order to provide a high throughput sputtering production process with a centralized electronic control system that will increase the overall efficiency of the sputtering process by providing a contaminant-free environment for the sputtering to occur in. It further would have been obvious to one having ordinary skill in the art to automate the process of Hirano as modified by Jones and Gerhardt since it has been held that broadly providing a mechanical or automatic means to replace manual activity which has accomplished the same result involves only routine skill in the art. In re Venner, 120 USPQ 192.

Claims 6, 7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirano in view of Jones, Gerhardt and Hollars.

Hirano as modified by Jones, Gerhardt and Hollars discloses the claimed invention except for the specific order of the steps of how the layers are applied to one

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another. In general, the transposition of process steps or the splitting of one step into two, where the process are substantially identical or equivalent in terms of function, manner and result, was held to be not patentably distinguish the processes. *Ex parte Rubin* 128 USPQ 159 (PO BdPatApp 1959).

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 5, 9 and 11 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 7,329,432 in view of U.S. Patent No. 5,683,561 (Hirano). Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the instant application fully encompass the scope of U.S. Patent No. 7,329,432 the only

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difference is claim 1 of U.S. Patent No. 7,329,432 is further limited by the recitation of the discharge device dispenses liquid droplets and the instant application recites a continuous process with controllers which is an obvious modification as discussed above with Hirano, which is incorporated herein.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT HODGE whose telephone number is (571)272-2097. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Robert Hodge/  
Examiner, Art Unit 1795



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